

REMARKS

Claims 6-9, 19, 22, 23, 25 and 26 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. By this amendment Claims 6, 19, 22 and 25 have been rewritten in independent form including all of the limitations of the base claim and any intervening claims. As a result, Claims 6-9, 19, 22, 23, 25 and 26 stand allowable.

Claims 10-17 stand objected to as containing the informality "an analog gain control system as claimed in claim 10 is not shown in any of the drawings". Claims 10-17 are indicated as being allowable after the drawing is corrected as mentioned above. By this amendment, Claim 10 has been amended such that the term "analog gain control system" has been amended to instead be --gain control stage--, which is clearly disclosed in Fig. 3. Accordingly, Claims 10-17, as amended, stand allowable since the amendment to Claim 10 has negated the need for any drawing amendment. As a result, Claims 10-17 stand allowable.

Claims 1-5, 18, 20, 21, and 24 stand rejected under 35 U.S.C. 102(b) as being anticipated by Fong, U.S. Patent #6,211,737 B1. Applicant respectfully traverses this rejection as set forth below.

In order that the rejection of any of Claims 1-5, 18, 20, 21, and 24 be sustainable, it is fundamental that "each and every element as set forth in the claim be found, either expressly or inherently described, in a single prior art reference." Verdegall Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also, Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989), where the court states, "The identical invention must be shown in as complete detail as is contained in the ... claim".

Furthermore, "all words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Independent Claim 1 requires and positively recites, a variable gain amplifier, comprising: "an input stage that receives an input signal and converts the input signal into a corresponding intermediate signal", "an output stage that provides an output signal based on the intermediate signal and **a gain control signal**" and "a feedback stage that provides a feedback signal to the input stage as a function of **the gain control signal**, the intermediate signal varying as a function of the input signal and the feedback signal".

Independent Claim 18 requires and positively recites, a variable gain amplifier, comprising: "means for converting a received input signal into an intermediate signal", "means for steering one part of the input signal to an output and another part of the input signal to means for generating a feedback signal based on **a gain control signal**" and "the means for generating a feedback signal providing the feedback signal to the means for converting based on the another part of the input signal **and the gain control signal**".

Independent Claim 20 requires and positively recites, a variable gain amplifier, comprising: "an input stage that receives an input signal and a feedback signal and provides an intermediate signal as a function of the input signal and the feedback signal", "an output stage that provides an output signal based on the intermediate signal and **a gain control signal**" and "a feedback stage that provides the feedback signal to the input stage as a function of the gain control signal so as to maintain a substantially constant maximum amplitude for a difference between the input signal and the feedback signal in the input stage, thereby providing substantially constant output linearity over a range of amplitudes for the input signal".

Independent Claim 24 requires and positively recites, a method for providing variable gain amplification in a variable gain amplifier, comprising: "receiving an input signal at an input stage", "converting the input signal into an intermediate signal", "directing part of the intermediate signal to an output of the variable gain amplifier based on **a gain control signal**", "directing another part of the intermediate signal to feedback circuitry based on **the gain control signal**" and "providing a feedback signal to the input stage based on the another part of the signal directed to the feedback circuitry".

In contrast, Fong clearly shows in Fig. 2 a signal "Bias" coupled to the base of Q2 and a control signal "B1" coupled to the base of Q3. Fig. 3 similarly shows a signal "Bias" coupled to the base of Q2 and a control signal "B1" coupled to the base of Q3. In addition, Fig. 3 further shows additional bias voltages B2 and B3 coupled to the bases of transistors Q4 and Q5, respectively. Fong clearly teaches that transistor Q2 is supplied with bias voltage, for example, about 2V from a bias input Bias (col. 3, lines 54-56).

Fong goes on to disclose that transistor Q3 is provided with a control signal at its base B1 to switch it between a conductive and a non-conductive state (col. 4, lines 16-18). Nowhere, however, does Fong teach or suggest that signal "Bias" is the same signal as control signal "B1". As a result, Fong discloses two distinct bias signals. Similarly, Fong goes on to disclose another embodiment in Fig. 3 in which the bases B2 and B3 of the transistors Q4 and Q5 receive **appropriate bias voltages** to divert or not diver current from the output RFout to achieve second and third further gain modes in the same manner as applied to the base B1 of the transistor Q3 (col. 5, lines 42-46). As in Fig. 2, B2 and B3 are yet additional voltages. Being that Fong discloses a different signal at the bases of each of transistors Q2-Q4, Fong fails to teach or suggest that the signal at any two of the transistors is the SAME signal. As a result, Fong fails to teach or suggest, "an output stage that provides an output signal based on the intermediate signal and **a gain control signal**" and "a feedback stage that provides a feedback signal to the input stage as a function of **the gain control signal**, the intermediate signal varying as a function of

the input signal and the feedback signal”, as required by Claim 1, or “means for steering one part of the input signal to an output and another part of the input signal to means for generating a feedback signal based on **a gain control signal**” and “the means for generating a feedback signal providing the feedback signal to the means for converting based on the another part of the input signal **and the gain control signal**”, as required by Claim 18, or “an output stage that provides an output signal based on the intermediate signal and **a gain control signal**” and “a feedback stage that provides the feedback signal to the input stage as a function of **the gain control signal** so as to maintain a substantially constant maximum amplitude for a difference between the input signal and the feedback signal in the input stage, thereby providing substantially constant output linearity over a range of amplitudes for the input signal”, as required by Claim 20, or “directing part of the intermediate signal to an output of the variable gain amplifier based on **a gain control signal**”, “directing another part of the intermediate signal to feedback circuitry based on **the gain control signal**” and “providing a feedback signal to the input stage based on the another part of the signal directed to the feedback circuitry”, as required by Claim 24.

From the above, it should be clear that Fong fails to disclose “each and every element as set forth in the claim be found, either expressly or inherently described, in a single prior art reference”, as required by law. Accordingly, the 35 U.S.C. 102(b) rejection of Claims 1, 18, 20 and 24 is overcome.

Claims 2-5 and 21 stand allowable as depending from allowable claims, directly or indirectly, and including further limitations not taught or suggested by the references of record.

Claims 1-5, 18, 20, 21, and 24 stand rejected under 35 U.S.C. 102(b) as being anticipated by Madni, U.S. Patent #6,304,142 B1. Applicants respectfully traverse this rejection as set forth below.

In order that the rejection of any of Claims 1-5, 18, 20, 21, and 24 be sustainable, it is fundamental that “each and every element as set forth in the claim be found, either expressly or inherently described, in a single prior art reference.” Verdegall Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). See also, Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989), where the court states, “The identical invention must be shown in as complete detail as is contained in the ... claim”.

Furthermore, “all words in a claim must be considered in judging the patentability of that claim against the prior art.” In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Independent Claim 1 requires and positively recites, a variable gain amplifier, comprising: “an input stage that receives an input signal **and converts the input signal into a corresponding intermediate signal**”, “an output stage that provides an output signal based on the intermediate signal **and a gain control signal**” and “a feedback stage that provides a feedback signal to the input stage **as a function of the gain control signal**, the intermediate signal varying as a function of the input signal and the feedback signal”.

Independent Claim 18 requires and positively recites, a variable gain amplifier, comprising: “means for converting a received input signal into an intermediate signal”, “means for **converting a received input signal into an intermediate signal**”, “means for steering one part of the input signal to an output and another part of the input signal to means for generating a feedback signal based on **a gain control signal**” and “the means

for generating a feedback signal providing the feedback signal to the means for converting **based on** the another part of the input signal **and the gain control signal”**.

Independent Claim 20 requires and positively recites, a variable gain amplifier, comprising: “an input stage that receives an input signal and a feedback signal and provides an intermediate signal as a function of the input signal and the feedback signal”, “an output stage that provides an output signal based on the intermediate signal and **a gain control signal**” and “a feedback stage that provides the feedback signal to the input stage as **a function of the gain control signal** so as to maintain a substantially constant maximum amplitude for a difference between the input signal and the feedback signal in the input stage, thereby providing substantially constant output linearity over a range of amplitudes for the input signal”.

Independent Claim 24 requires and positively recites, a method for providing variable gain amplification in a variable gain amplifier, comprising: “receiving an input signal at an input stage”, **“converting the input signal into an intermediate signal”**, “directing part of the intermediate signal to an output of the variable gain amplifier based on **a gain control signal**”, “directing another part of the intermediate signal to feedback circuitry **based on the gain control signal**” and “providing a feedback signal to the input stage based on the another part of the signal directed to the feedback circuitry”.

In contrast, Madni clearly shows in Fig. 3 that gain control signal “BIAS”, which is coupled to the bases of transistors T9 and T10, is not the same gain control signal as “adc_adjust +”, coupled to the bases of transistors T6 and T7 OR gain control signal “agc_adjust-” coupled to the base of transistor T5. As a result, Madni fails to teach or suggest, “an output stage that provides an output signal based on the intermediate signal **and a gain control signal**” and “a feedback stage that provides a feedback signal to the input stage **as a function of the gain control signal**, the intermediate signal varying as a function of the input signal and the feedback signal”, as required by Claim 1 or, “means

for steering one part of the input signal to an output and another part of the input signal to means for generating a feedback signal based on **a gain control signal**" and "the means for generating a feedback signal providing the feedback signal to the means for converting **based on** the another part of the input signal **and the gain control signal**", as required by Claim 18 or, "an output stage that provides an output signal based on the intermediate signal and **a gain control signal**" and "a feedback stage that provides the feedback signal to the input stage as **a function of the gain control signal** so as to maintain a substantially constant maximum amplitude for a difference between the input signal and the feedback signal in the input stage, thereby providing substantially constant output linearity over a range of amplitudes for the input signal", as required by Claim 20 or, "directing part of the intermediate signal to an output of the variable gain amplifier based on **a gain control signal**", "directing another part of the intermediate signal to feedback circuitry **based on the gain control signal**", as required by Claim 24.

Similarly, since input signal IN+ is coupled to the base of transistor T1, IN+ in no way is converted into the intermediate signal on the collector of T1. As a result, Madni further fails to teach or suggest, "an input stage that receives an input signal **and converts the input signal into a corresponding intermediate signal**", as further required by Claim 1 or, "means for **converting a received input signal into an intermediate signal**", as required by Claim 18 or, "**converting the input signal into an intermediate signal**", as required by Claim 24.

From the above, it should be clear that Madni fails to disclose "each and every element as set forth in the claim be found, either expressly or inherently described, in a single prior art reference", as required by law. Accordingly, the 35 U.S.C. 102(e) rejection of Claims 1, 18, 20 and 24 is overcome.

Claims 2-5 and 21 stand allowable as depending from allowable claims, directly or indirectly, and including further limitations not taught or suggested by the references of record.

Applicant appreciates the Examiner's indication that Claims 6-9, 19, 22, 23, 25 and 26, objected to as being dependent upon a rejected base claim, would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. By this amendment, the objected to claims have been rewritten to be allowable. Applicant further appreciates the Examiner's indication that Claims 10-17 will be allowed upon a correction to the drawing. By this amendment Applicant has removed the need for any amendment to the drawing. Further, in light of the arguments set forth above, Claims 1-5, 18, 20, 21 and 24 also stand allowable. Accordingly, Claims 1-26 stand allowable. Applicant respectfully requests allowance of the application as the earliest possible date.

Respectfully submitted,



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